Improving **E**ducational **E**valuation & **Q**uality in China

改进中国教育评价和质量

Exploring Educational Quality Across three Regions in China

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Introduction

- Improving education quality is a major goal of countries worldwide

- School effectiveness research has stimulated and focused educational policy makers' attention on the potential to raise overall levels of educational standards and student achievement.

- For example, western governments such as the UK have placed a strong focus on encouraging schools and teachers to use innovative evaluation methods and these approaches have been linked to improved educational outcomes.

Introduction

- However, in China, raw measures of pupils' academic outcomes and HE entrance levels are frequently viewed as the key indicators of school quality. As a result schools with disadvantaged intakes tend to be judged unfairly, while complacency is possible amongst schools with more able pupils and it is difficult to identify best practice.

- An alternative approach examines the relative progress of pupils during their time at school and this methodology - often referred to as value added - is widely regarded as providing more accurate measures of school effectiveness than the raw results.

- Therefore, it is important to look closely at the opportunities and potential for enhancing educational quality in China via innovative school evaluation methods and school effectiveness research.

Policy Context in China

2009 National People's Congress, the Chinese Premier Wen Jiabao emphasised the need to prioritise educational development and outlined an initial focus on five key areas (NPC, 2009) :

- promote fairness in education

- optimise the education structures to develop vocational education

- improve the quality of teachers

- advance well-rounded education

- implement a program to ensure that all primary and secondary school buildings are safe and promote standardisation in the construction of rural primary and secondary schools

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Cheng, K-M., & Wong, K.-C. (1996)

Suggests that most of the general features of an effective school prevalent in the literature are readily existent in the school system in China, in particular:

- There is consistent support of education from the community;
- There is a demonstrated high degree of professionalism among teachers whose prime concern is student learning;
- There is a built-in tradition of quality assurance; and
- There are coherent high expectations of students (p33)

In other words,

….schools in China bear most of the characteristics of an "effective school (pg36)

Empirical studies using the concept of value added in China mainland are rare, for example

Tang, L.C. & Liang, L.L. (2005).学校效能评价的尝试(An Exploratory Study of School Effectiveness Using Value Added Method).上海教育科研*(Shanghai Research on Education)*, 4, 24-26.

Ding(丁延庆), Y. Q., & Xue(薛海平), H. P. (2009). 高中教育的一个生产函数研究A study on the education production function with high school data. 华中师范大学学报(人文社会科学版)Journal of Huazhong Normal University(Humanities and Social Sciences), 48(2), 122-128.

China is also notably missing from international comparative studies of school effects (e.g., Scheerens 2001).

Therefore further research on this topic is both timely and essential to explore the potential of value added methodology to enhance school effectiveness and school evaluation methods in China – as well as to add to the international/comparative literature on school effects.

Aims of the IEEQC Project

- To enhance understanding of the complex nature of school effectiveness in China and how local context may play a key role in determining definitions of educational effectiveness & quality

- To provide new insights and extend current theories about the impact of student characteristics, and school context, and process factors on students attainment and progress at school using innovative quantitative methodology (multilevel modelling) and the relevance of these factors in the evaluation of school performance in China

- How western approaches to evaluating educational quality may be adapted and developed to take account of local contexts and priorities

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2 Studies of the IEEQC Project

Study 1: qualitative study exploring stakeholder views about the nature of educational quality, experiences of school evaluation and self evaluation and issues of local context and priorities (and sustainable capacity building) in relation to educational evaluation and quality in China

Study 2: quantitative study examining the nature, size and extent of school effectiveness in China using value added measures

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Research Questions of IEEQC Study 2

- **Research question 1.** What is the impact of student characteristics, and school context, input and process factors on students' attainment and progress at senior secondary schools in China

- **Research question 2.** Given the findings from 1 what are the appropriate (optimal) multilevel models for measuring school effectiveness using a value added approach for a range of different academic outcomes (eg Chinese, mathematic, English) and different student groups (eg by prior ability)?

- **Research question 3.** Can a model of school effectiveness be identified and defined that takes account of different regional education systems? Alternatively does the evidence suggest the need for different models for different regions?

- **Research question 4.** How do the findings from 1-3 compare with equivalent results in UK and elsewhere (eg Thomas, 2001)

Research Methods of Study 2

Sample – 90,000+ students in 100+ Senior high schools in 3 LEAs

Data collection

- 2008/2009 HE entrance examination results (ie Chinese, English, Maths, comprehensive Arts or Science scores)

- 2005/2006 SHS entrance examination results (ie Chinese, English and Maths scores)

- Student information (eg gender, age, ethnicity, parental education and occupations, tuition fee, huko, family/housing condition, and views about self and school)

- School information (eg location, status, headteacher education and teaching year, number of teachers, teaching and learning (eg objectives, quality indicators, evaluation, improvement school and class culture))

Research Methods of Study 2

Types of explanatory variables

(1) prior attainment, (2) student characteristics, (3) school context factors, (4) student effort, (5) student attitude, (6) school input, and (7) school process

Multilevel Modeling Statistical analysis

- creating a range of different school effectiveness models by employing a fixed set of explanatory variables based on their types and different model specifications and using the optimal models to examine the school residuals for a range of outcomes and groups of students

Descriptive statistics – School context

Variable	N	Min	Max	Mean	SD
LEA1					
% Father migrant	**42**	**13.48**	**53.30**	**31.45**	**8.22**
% More than 50 books	42	20.85	43.67	29.85	4.80
% Family living in town/city	42	3.36	61.64	23.16	12.85
% Student major in arts	42	15.7	100.0	43.4	15.9
LEA2					
% Father migrant	**54**	**3.33**	**43.73**	**23.88**	**10.79**
% More than 50 books	54	5.76	52.59	16.94	8.58
% Family living in town/city	54	2.08	81.92	23.89	20.30
% Student major in arts	54	20.3	78.6	40.6	12.9
LEA3					
% Father migrant	**27**	**17.78**	**79.26**	**43.71**	**17.06**
% More than 50 books	27	3.70	26.69	15.29	6.18
% Family living in town/city	27	0.00	51.65	16.58	16.22
% Student major in arts	27	19.14	65.12	38.65	11.29

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	% Total variance explained Total HEEE score		
2 level Models	LEA1	LEA2	LEA3
Value Added Model I (Prior attainment only)	**54.9**	**25.6**	**34.4**
Student characteristics	8.2	15.4	17.3
School context	22.9	19.9	27.0
School input	18.6	11.6	25.5
School process	18.6	17.3	28.3
Value Added Model II (Prior attainment and student characteristics)	**55.5**	**33.4**	**41.4**
Value Added Model III (model II plus school context factors)	**57.2**	**42.6**	**47.8**
Value Added Model IV (model III plus school process/input factors)	58.4	45.4	57.0
Value Added Model V (model IV plus student effort/attitude factors)	58.7	50.3	60.5

	% School variance explained Total HEEE score		
2 level Models	LEA1	LEA2	LEA3
Value Added Model I (Prior attainment only)	**83.9**	**33.4**	**49.3**
Student characteristics	16.9	12.2	8.0
School context	95.5	75.0	95.8
School input	68.5	47.6	86.8
School process	78.3	63.6	100.0
Value Added Model II (Prior attainment and student characteristics)	**84.0**	**38.5**	**44.9**
Value Added Model III (model II plus school context factors)	**90.9**	**72.2**	**70.0**
Value Added Model IV (model III plus school process/input factors)	98.4	84.7	100.0
Value Added Model V (model IV plus student effort/attitude factors)	98.4	85.2	100.0

Type of Feedback – Total
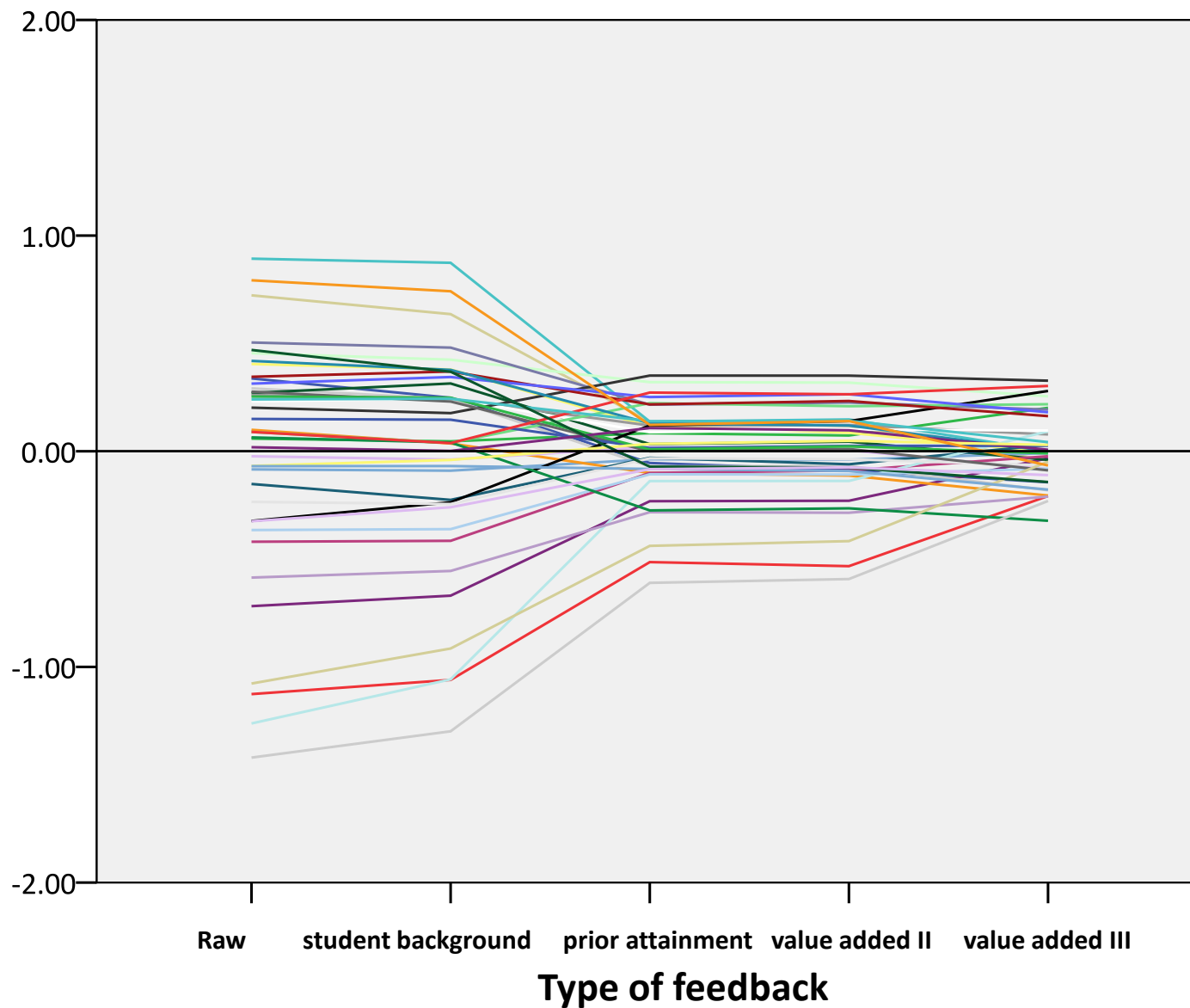
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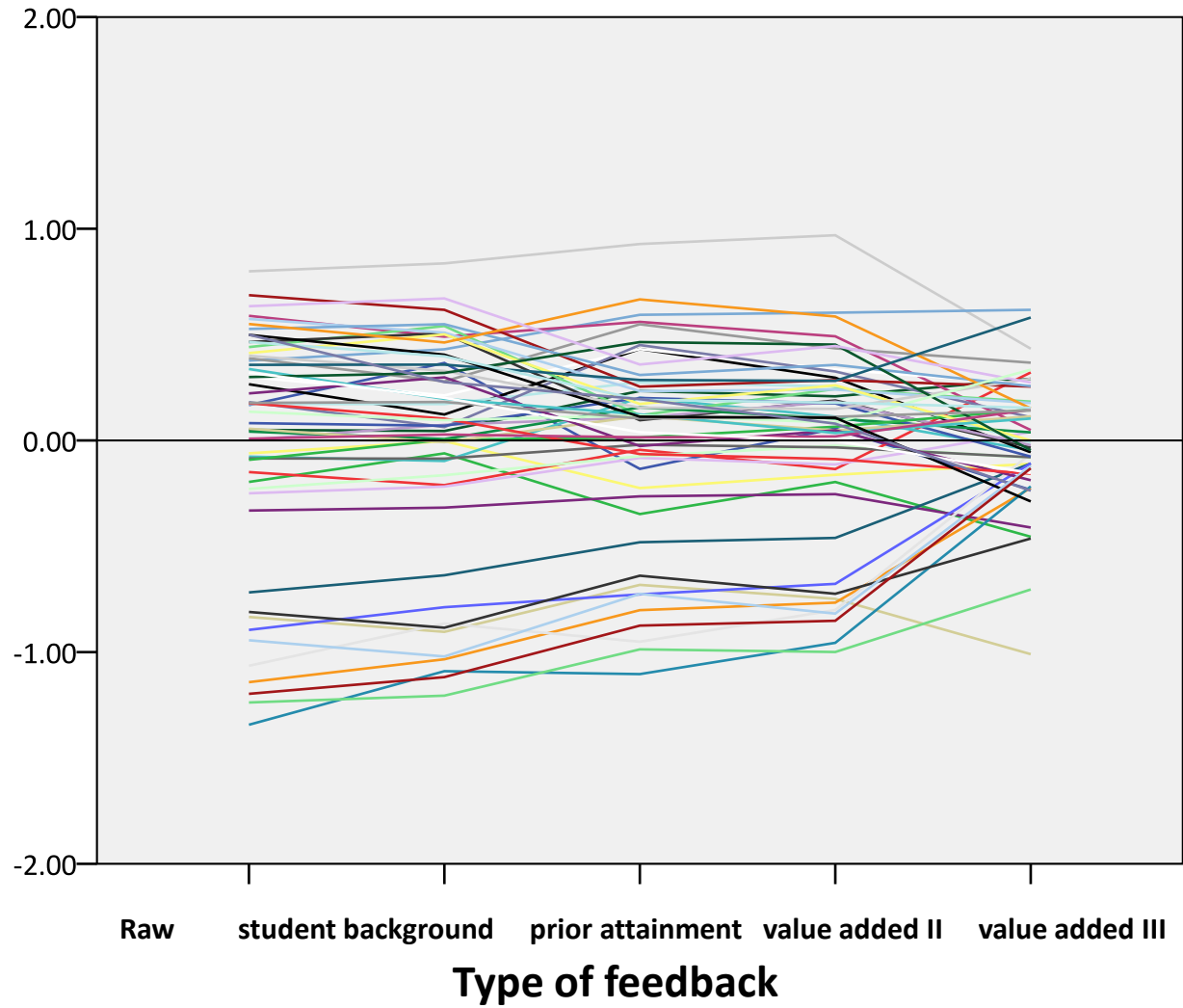
Significant Student variables - Total Score VA III

Variable (same model for 3LEAs)	LEA		
	1	**2**	**3**
prior attainment	+	+	+
Girl	-		-
Age	-	-	-
Art (vs Science)	-	-	+
Extra full tuition fee (vs nomal)		-	-
Full or partial scholarship fee (vs normal)		+	+
Family living/Hukou in town or village (vs city)	-	+	+
School-home time taken 15-30 minutes (vs less than 15 minutes)	-	-	-
Living with parents (vs boarder) or studying at this school since SHS year2/year3 (vs SHS year1)		-	
Graduated from provincial/national model JHS (vs ordinary)		+	+
Mother education – JSH or SHS (vs PS)		-	
Mother education – SHS or tertiary (vs PS)	-		
Father education as first degree or mother education as master/above (vs PS)		+	
Father as agriculture, production worker , migrant worker, unemployed (vs unit head)		+	
Mother as agriculture, self-employed, unemployed		+	
Mother as agriculture			+
Mother or Father as teacher		+	
Home possession: own room		-	-
Home possession: own mobile	-	-	-
Home possession: computer	-		
Home possession: car	-	-	
Home possession: CD player, MP3 or more than 200 books		+	
Home possession: colour TV	+		+
Home possession: motorcycle		-	

Significant Input & Process variables - Total Score Model IV

Variable (same model for 3LEAs)	LEA		
School input	**1**	**2**	**3**
Ratio of pupil over teacher			+
Ratio of computer over teacher			-
Ratio of library books over students	+		+
Headteacher receiving training before taking up the role			+
School process			
Headteacher observes teachers' teaching	-		-
Goal: promote lifelong learning	+		+
Goal: develop skills for employment and career	-	-	-
the morale of teachers is high		+	+
Students trust teachers	+	-	-
Teachers respect students	-		-
Students involved in school decision	-		+
Students like to go to this school	-		-
Teachers participate in decision making	+		
Students clearly understand school rules and regulations			+

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Conclusions so far – IEEQC study 2

- **First year of data collection and the results are estimates** – need to explore further, clarify and examine stability in results over time using equivalent data from subsequent cohorts/years (2009-2012)

- **Best "value added" model for estimating school effects/school evaluation in Chinese context** – need to take account of students prior attainment, individual background characteristics and school context (similar to UK).

- **Some important explanatory variables may be unique to China** (eg hukou – family residence status).

- **Difference in results between Chinese regions** – in some areas there seems to be a stronger impact of some student/school context factors on student outcomes as compared with UK and elsewhere – **therefore also need to examine LEA specific models.**

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Conclusions so far – IEEQC study 2

- **School effects** – Having controlled for student and school context factors statistically significant differences were found between schools in terms of "value added" measures of school effectiveness.

- **Percentage of variance in student outcomes attributable to Chinese schools varies across LEAs** and in some cases appears to be somewhat higher than in UK.

- **Differential school effects** – similar to UK statistically significant differences within schools between different groups of student (according to prior ability) but less evidence between different subject departments.

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IEEQC lessons learned so far

- "Value Added" measures would provide an important and welcome addition to current school evaluation systems in China but need to be aware of limitations and also fit with Chinese priorities (all round development and focus of students/parents on raw scores).

- A new government focus on school self evaluation and school improvement would be welcomed by stakeholders, as well as reform of HE entrance requirements to reduce focus on raw examination scores.

- Data quality is crucial - rigorous and systematic longitudinal data collection procedures are required to ensure data quality, as well as explicit agreements between schools, administration and research organisations taking responsibility for data collection.

- Differences in findings and examination systems between provinces and cities (particularly at lower educational levels) means that creating a national "value added" system may be inappropriate. However "value added" evaluation systems are feasible for regions or cities. Consider the possibilities for regional student databases within a nationally agreed framework.

- The evidence suggests that a range of "value added" measures are required – eg for different subject outcomes and groups of students. Also consider extending to non-academic outcomes such as vocational and attitude measures

- Widespread and comprehensive training is required in evaluation concepts and methods

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Thank you for listening!

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